2/2 027 UNCLASSIFIED

CIRC ACCESSION NO--AP0123075 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CASTRATION INCREASED CONVULSION SUSCEPTIBILITY IN RATS SENSITIVE TO SOUND IRRITATION AND IN DOGS AFTER INJECTION OF A CAMPHOR ETHER MIXT. THE INCREASED SUSCEPTIBILITY OCCURRED IN THE 2ND WEEK AFTER OPERATION. THE LATENT PERIOD IN CONVULSIONS (DOGS) WAS DECREASED; THE TONIC AND CLONIC PERIOD WAS PROLONGED. THE ADMINISTRATION OF TESTOSTERONE (0.5 MG-KG OF BODY WT.) FOR 30 DAYS DECREASED CONVULSION SUSCEPTIBILITY, BUT THE REACTION OF ANIMALS DID NOT REACH THE NORMAL LEVEL.

UNCLASSIFIED

USSR

UDC 577.391:575.1:633.11

SEMERDZHYAN, S. P., NOR-AREVYAN, N. G., SAAKYAN, A. G., and GRIGORYAN, Z. D., Scientific Research Institute of Agriculture, Armenian SSR

"The Relationship Between the Radiation Sensitivity of Wheat Seedlings and the Content of Sulfhydryl Compounds in Meristem Cells"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 24, No 3, Mar 71, pp 106-107

Abstract: Two lines of the same variety of wheat (Bezostaya 1) were selected, one with rapidly growing and the other with slowly growing seedling stalks. Two-day old seedlings of both lines, which were genetically identical, were irradiated with gamma-rays in a dose of 300 r. The content of SH groups per 100 mg of stalk meristem cells of seedlings not irradiated was 1.007 and 1,315 micromole for the rapid-growing and the slow-growing line, respectively. Upon irradiation, the growth of stems of the rapid-growing line was depressed to a greater extent than that of stems of the slow-growing line. The number of cells with chromosome aberrations determined in anaphase after irradiation was greater in the stalk meristem of the rapid-growing line than that of the slow-growing line. The results showed that there was a definite correlation between the radiation sensitivity of the seedlings and the content of SH groups in their meristem cells.

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1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--VULCANIZATION OF LOW MOLECULAR WEIGHT CARBOXYL CONTAINING RUBBER SKD-I -U-

AUTHOR-(05)-EBICH, YU.R., BLOKH, G.A., MELAMED, CH.L., GRIGORYANTS, I.K., SHANINA, L.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 263-6

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--VULCANIZATION, CARBOXYLATE RUBBER, ORGANIC SULFUR COMPOUND, ZINC OXIDE, TENSILE STRENGTH/(U)SKD1 SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0183 STEP NO--UR/0153/70/013/002/0263/0266

CIRC ACCESSION NO--AT0132460

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0132460

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VULCANIZATION RATES, SWELLING, CO SUB2 H GROUP CONTENTS, AND UNSATN. WERE DETD. FOR SKD-1 RUBBER DURING AND AFTER ITS VULCANIZATION WITH 5,IMINO,1,2,4,DITHIAZOLIDINE,3,THIONE (I),ZNO MIXT. OR WITH PIPERIDINO TRISULFIDE (II),ZNO MIXT. ZNO, I, OR II ALONE WERE NOT SATISFACTORY. THE BEST RESULTS WERE OBTAINED WITH 7 PARTS I AND 5 PARTS ZNO IN 100 PARTS SKD-1 AT 300DEGREES. THE VULCANIZATES OBTAINED WITH I AND ZNO HAD 2-3 TIMES LARGER TENSILE STRENGTH AT BREAK THAN THE VULCANIZATES OBTAINED WITH ZNO ALONE. FACILITY: DNEPROPETROVSK. KHIM.-TEKHNOL. INST. IM. DZERZHINSKOGO, DNEPROPETROVSK, USSR.

UNCLASSIFIED

USSR

UDC 577.1:615.7/9

GRIGOR'YANTS, N. N., and SVINTSOVA, V. K.

"Variation in Catalase Activity of the Blood Under the Effect of Strontium"

Zdravookhr. Turkmenistana (Public Health in Turkmenistan), 1972, No 10, pp 7-9 (from RZh-Biologicheskaya Khimiya, No 10, 1973, Abstract No 10F2121)

Translation: For rabbits a single subcutaneous injection of strontium nitrate in doses of 0.01-500 γ Sr/kg caused no significant changes in the catalase (I) activity of the blood 1 to 3 hours after administration. Another group of rats ate strontium nitrate daily in doses of 0.1, 10 and 5,000 γ /kg for 30 days , and the I activity was analyzed on the tenth, 20th and 30th days. After 10 days of eating Sr, the I activity was 108.1-134.7% of the control (calculated per erythrocyte). After 20 days it was 154.9% (independently of the dose), and after 30 days it decreased somewhat, but it remained above the control indexes. It is concluded that for the doses used on prolonged administration Sr is a I activating agent in the blood.

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Acc. Nr: AP0046017 Abstracting Service: INTERNAT. AEROSPACE ABST. Ref. Code: 5-70 U R0057

GRIGORYANTS V.G.

A70-25116 # Excitation and ionization of atoms under Knudsen conditions of operation of a cesium diode (Vozbuzhdenie i ionizatsiia atomov v Knudsenovskikh rezhimakh raboty tsezievogo dioda). E. P. Busygin, V. G. Grigor'iants, B. G. Zhukov, and I. P. Iavor (Akademiia Nauk SSSR, Fiziko-Tekhnicheskii Institut, Leningrad, USSR). *Zhurnal Tekhnicheskoi Fiziki*, vol. 40, Jan. 1970, p. 211-217. 10 refs. In Russian.

Description of the measurement method employed and summary of the results obtained in an experimental study of the processes of excitation and ionization of cesium atoms in the interelectrode space under Knudsen conditions of operation of a narrow-gap cesium diode. The special features leading to luminescence in the gap under undercompensated conditions are noted. It is shown that under these conditions excitation is caused by an accelerated-electron beam. From the results of spectroscopic measurements the electron energy distribution in the region of the boundaries of line manifestation and in the anode region of the gap is determined for both small and large anode voltages. It is observed that the conditions of excitation of atoms change with the start of ionization in the interelectrode space. A.B.K.

REEL/FRAME
19781078

USSR

UDC 539.3

GRIGORENKO, YA. M., BESPALOVA, YE. I., LATSINNIK, I. F., (Kiev), Institute of Mechanics, Academy of Sciences, Ukrainian SSR

"Calculation of Plates of Variable Rigidity"

Kiev, Prikladnaya Mekhanika, Vol 7, No 9, Sep 71, pp 45-49

Abstract: The article approaches a solution to two-dimensional boundary-value problems of the curvature of rectangular plates with rigid characteristics, variable in two directions, with various combinations of hinged and rigid support of two opposing edges. The problem is solved by the method of integral relationship in the form of L. V. Kantorovich with the use of trigonometric functions. Solution of unidimensional problem is realized by means of a stable numerical method on an electronic digital computer. Examples are given of the calculation of specific problems which illustrate good convergence of the applied method. This approach may be used without any essential difficulties also when solving problems given with a stress-deformed state of open shells of variable rigidity in two directions. One figure, two tables, six references.

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USSR UDC 621.791:533.9

VOROPAY, N. M., Cand. Tech. Sci., SHCHERBAK, V. V., and GRIGOR'YEV, A. A., Engrs.

"Pulse Microplasma Welding of Thin Aluminum Gaskets"

Moscow, Khimicheskoye i Neftyanoye Mashinostroyeniye, No 11, Nov 71, p 19

Abstract: Gaskets consisting of an Al shell with a wall thickness of 0.2-0.3 mm filled with asbestos and having a diameter $\leq$ 600 mm are used in chemical and petroleum conversion equipment. Difficulties have been encountered in the butt welding of the thin Al sheets because of the formation of burn holes and the failure of the sheets to join. A satisfactory method of pulse microplasma butt welding of the Al sheets has been developed by the Institute of Electric Welding imeni Ye. O. Paton jointly with the VNIIPT of Chemical and Petroleum Conversion Equipment. In the procedure, Ar is used as the plasma-forming gas and He as a protective gas which compresses the arc radially. Melting of the metal takes place during the positive potential pulse and dispersion of the oxides that have formed on the surface during the negative potential pulse. The pulse of the current of direct polarity has a higher amplitude than that of the current of reverse polarity. Equipment for manual and mechanized (automatic) welding by this method has been

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AUTHOR-- GRIGOR,YEV, A., ENGINEER

TITLE-- TECHNICAL AND SCIENTIFIC NEWS

NEWSPAPER-- TRUD, JANUARY 22, 1970, P 2, COL 5

ABSTRACT-- THE CHIRCHIK PLANT OF REFRACTORY AND HEAT-RESISTANT METALS HAS ROLLED THE FIRST SAMPLE MOLYBDENUM SHEET 6-MM THICK, REPORTED V. KHAYDAROV, DIRECTOR OF THE PLANT. THE VACUUM ROLLING MILL WAS DESIGNED BY THE PHYSICAL-TECHNICAL INSTITUTE OF THE UKRAINIAN S.S.R.

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VOROPAY, N. M., et al., Khimicheskoye i Neftyanoye Mashinostroyeniye, No 11, Nov 71, p 19

developed. Use of a thin welding wire is preferable to welding without a wire, because the Al foil then does not have to be cut as precisely. The diameter of the nozzle for the plasma-forming Ar is 0.8-1.9 mm. In mechanized welding of Al sheets 0.3 mm thick, the current is 12-15 A, the rate of welding 30-40 m/hr, the flow of Ar 0.6-0.8 l./hr,the flow of He 2-3 l./hr. The burners are water-cooled. W electrodes with a diameter of 1.0-1.5 mm and a conically pointed tip are applied. Besides its application in the production of Al gasket shells, the procedure can be used quite generally for the welding of Al, Mg, and Al and Mg alloys to produce flat gaskets and parts and articles of other shapes with a wall thickness of 0.2-1.5 mm.

USSR UDC 771.534.5:771.537:535.241.6

GOROKHOVSKIY, Yu. N., Doctor of Sciences, GRIGOR'YEV, A. G., IVANOV, A. M., STEPOCHKIN, A. A.

"New Sensitometric Devices"

Optiko Mekhanicheskaya Promyshlennost', No 3, 1972, pp 43-50.

Abstract: A review is presented of new devices for measurement of the properties of black-white and color photographic materials and evaluation of photographic images on these materials. The devices covered include the SR-21 recording densitometer, the SR-22 reflecting goniodensitometer, the SR-25 universal densitometer, the MD-2M recording microdensitometer, the PP-48 automatic projection granulometer and the RP-2M projection resolvometer. Basic technical characteristics, structural diagrams and photographs are presented for all of these instruments.

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USSR UDC: 535.853.673

GOROKHOVSKIY, Yu. N., Doctor of Sciences, GRIGOR'YEV, A. G., IVANOV, A. M., SOROKIN, V. P., STEPOCHKIN, A. A.

"A High-Sensitivity Recording Microdensitometer"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 11, Nov 70, pp 33-37

Abstract: The article is a dexcription of the design and construction of an instrument developed by the authors -- the MD-2 high-sensitivity two-beam recording microdensitometer. The instrument is based on a compensation circuit with a single light source and a single photomultiplier as the receiver. The measuring element is a fixed gray scale placed in the same beam as the object to be measured. A diagram of the optical system is given as well as a block diagram of the densitometer as a whole. The machine output is a standard 275-mm chart recorder. The recording scale may be varied from 1:1 to 1:2000 in ten steps. The device can be used to measure optical densities up to 4.0 with a precision of ±0.01 density unit on a field of 500 square microns or more. The authors thank A. P. Grammatin for calculating the optical system of the microddensitometer in his laboratory, and also A.A. Barentseva for her participation in testing the experimental model of the instrument.

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USSR UDC 612.014.462.5+612.460

GRIGOR'YEV, A. I.

"The Effect of Spaceflight Conditions and Prolonged Experimental Hypokinesia on Kidney Function in Man"

Leningrad, Fiziologicheskiy Zhurnal SSSR, Vol 58, No 6, 1972, pp 828-835

Abstract: Tests were performed on cosmonauts prior to and after 5-day long orbital flights and in experimental subjects prior to, during, and after strict bedrest for 120 days. Upon return from spaceflight, the cosmonauts' body weight was reduced by 3-6%, their plasma electrolyte concentration and hematocrit were elevated, and they had polydipsia, oliguria, and reduced electrolyte excretion. On the 2d day their glomerular filtration rate was normal, and on the 3d day almost all values returned to normal. In experimental subjects, glomerular filtration rate, urine output, and electrolyte excretion were increased during the first 2 days of hypokinesia. Upon resumption of normal activity, changes in their kidney function were similar to those observed in the cosmonauts. It is concluded that in weightlessness, due to the initially increased central blood volume and distension of cardiac atria, secretion of antidiuretic hormone and of aldosterone diminishes, and blood volume is reduced until the central blood pressure returns to normal. These changes as well as those taking place upon return to normal circumstances constitute useful physiological adjustments.
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Grigor'yev, A.I.

STUDY OF RENAL HEMODYNAMICS BY [illegible]
THE RADIOISOTOPIC METHOD [illegible]
Report on Aerospace Use [illegible]

/Article by A. I. Grigor'yev, Moscow, Aviatsionno-kosmicheskaya meditsina, Akusherstvo, Ginekologiya i Fiziologiya Aviatsionno-Kosmicheskogo Poleta, No 5, 1967/

In a simulation of weightlessness by [illegible] component (undrug regime, immersion in water) it was possible to detect definite changes in body water-electrolyte metabolism. The principal effects cause maintaining the electrolyte constancy of the internal medium is the kidneys. Despite of their functioning under these conditions with fluid deficiency, a more complete physiological use of the mechanisms of developing impairments. Changes in the functional state of the kidneys in human subjects during prolonged confinement is also of interest for clinical specialists. This matter has not been discussed in the Soviet and foreign literature.

Isotopic nonography with [illegible] Hippuran makes it possible, without disrupting the normal body position, to make a separate and simultaneous investigation of kidney functioning by the external registration of the human radiation of an isotope which is selectively absorbed and excreted by the kidneys after internal administration.

We studied four healthy males in the age group from 21 to 44 years who over a period of [illegible] days were continuously confined to bed. Radioisotopic nonography was carried out when the subjects were lying on their backs. Skin counting the background and registration periods were five minutes during the period of hypokinesia. The investigation was made using a "Gamma" radiometric apparatus. The level of radioactive radiation in the blood and in the kidneys was registered using a six-channel EP-09 electronic potentiometer. Three curves were registered: blood clearance and nonophram of the

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USSR

UDC 669.018.8

BANNYKH, O. A., GRIGOR'YEV, A. I., and OSIPOV, M. M., Academy of Sciences USSR, Institute of Metallurgy imeni A. A. Baykov

"Influence of Alloying With Aluminum on Oxidation Resistance of Kh20N40 Alloy"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr, 1971, pp 161-164.

Abstract: The authors studied long-term oxidation of Kh20N40 alloy containing aluminum under thermal cycling conditions with heating to 900 and 1,000°. Chemical compositions of the alloys studied were:

Alloy No.	Al	Ni	Cr	C	Mn	Si	Fe
1	0.04	39.65	20.37	0.100	0.37	0.52	Remainder
2	0.85	40.24	19.80	0.095	0.40	0.23	"
3	2.04	40.65	19.48	0.048	0.35	0.14	"
4	4.62	40.67	19.50	0.040	0.38	0.18	"

Aluminum increases the rate of oxidation of this steel at 900°, but has a favorable influence on oxidation resistance at 1,000°.

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GRIGOR'YEV, A. I.

So: JPRS 53388
17 Jun 71

UDC 612.015.3+612.46/-057:629.78

POSTFLIGHT METABOLISM AND RENAL FUNCTION OF CREW MEMBERS ON THE 'SOYUZ-6,' 'SOYUZ-7,' and 'SOYUZ-8' FLIGHTS

[Article by I. S. Balakhovskiy, [redacted] Grigor'yev, I. G. Dlusskaya, [illegible]; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 1, 1971, pp 37-44, submitted for publication 23 April 1970]

Abstract: Different metabolic parameters of crew members of the "Soyuz-6," "Soyuz-7," and "Soyuz-8" spacecraft were studied before and after the flight. Functional changes were observed, but these constituted no health hazard. Weight losses were associated with an increased excretion of water and minerals, as indicated by the post-flight retention of water, chlorine, sodium and potassium in the body. The blood content of cholesterol, lipid phosphorus and sugar remained unchanged. No symptoms of disorders in adrenal function were noted.

Weight loss by cosmonauts during flight and impairments in the renal water-eliminating function thereafter have already been reported (Yu. V. Natochin, et al.; Ye. I. Vorob'yev, et al.; Berry and Catterson). Since the excretion of nitrogen with the urine did not increase, the weight decrease can be attributed only to dehydration, not to tissue breakdown. Such conclusions were drawn as a result of observation of a relatively limited number of cosmonauts. Accordingly, it was of interest to continue these observations by a detailed examination of the seven cosmonauts making the group flight on the "Soyuz-6," "Soyuz-7," and "Soyuz-8" ships at the same time: we traced their dynamics of excretion of electrolytes and studied their renal function.

Method

In the analysis we took 0.1 ml of blood from the finger and preserved it by drying on filter paper. We determined the content of sugar, urea, cholesterol and lipid phosphorus using an original method which makes it

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UDC 539.192/.194+535.33/.34.01

GRIGOR'YEV, A. I.

"Frequencies of Valence Vibrations of CH Compounds as a Criterion for the Formation and Strength of Coordination Bonds in Complexes With Certain Nitro- and Oxy-Ligands"

V sb. Kolebatel'n. spektry v neorgan. khimii (Vibrational Spectra in Inorganic Chemistry -- Collection of Works), Moscow, "Nauka," 1971, pp 116-122 (from RZh-Fizika, No 5, May 71, Abstract No 5D146)

Translation: In the IR absorption spectra of several organic ligands containing nitrogen or oxygen (CH_3O^-, $HCOO^-$, $(CH_3)_3N$, $N(CH_2COO^{-3})_3$, etc.) as donor atoms, the frequencies of valence vibrations (and force constants) of σ-bonds of CH have anomalously low values (100-150 cm^{-1} lower than in hydrocarbons). The perturbation and frequencies (and force constants) ν(CH) are associated with a change in the degree of ionicity of the CH bond occurring due to an increase in the effective negative charge in carbon on the basis of a comparison with nuclear magnetic resonance spectra. A parallel is drawn between the frequency perturbation ν(OH) and ν(NH) in H_2O and NH_3 (as compared with H_3O^+ and NH_4^+) and the perturbation and frequencies ν(CH).

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USSR

GRIGOR'YEV, A. I., Kolebatel'n. spektry v neorgan. khimii

With the formation of coordination bonds by oxygen or nitrogen atoms, the frequencies ν(CH) uniformly rise with an increase in the strength (degree of covalence) of these compounds. Examples of the use of the frequencies ν(CH) as a criterion for the formation and strength of coordination bonds for the solution of problems in structural chemistry are discussed.

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UDC 669.018.8

USSR

BANNYKH, O. A., GRIGOR'YEV, A. I., and OSIPOV, M. M., Academy of Sciences USSR, Institute of Metallurgy imeni A. A. Baykov

"Influence of Alloying With Aluminum on Oxidation Resistance of Kh20N40 Alloy"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr, 1971, pp 161-164.

Abstract: The authors studied long-term oxidation of Kh20N40 alloy containing aluminum under thermal cycling conditions with heating to 900 and 1,000°. Chemical compositions of the alloys studied were:

Alloy No.	Al	Ni	Cr	C	Mn	Si	Fe
1	0.04	39.65	20.37	0.100	0.37	0.52	Remainder
2	0.85	40.24	19.80	0.095	0.40	0.23	"
3	2.04	40.65	19.48	0.048	0.35	0.14	"
4	4.62	40.67	19.50	0.040	0.38	0.18	"

Aluminum increases the rate of oxidation of this steel at 900°, but has a favorable influence on oxidation resistance at 1,000°.

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UDC 546.45

USSR

SIPACHEV, V. A., GRIGOR'YEV, A. I., and NOVOSELOVA, A. V., Academician

"The Properties of Beryllium Ethoxyacetate with the Composition $Be_7O_2(Ch_3COO)_6(OC_2H_5)_4$ and a Method of Obtaining It"

Moscow, Doklady Akademii Nauk SSR, Vol 196, No 4, 1971, pp 834-835

Abstract: This article contains a discussion of the properties of beryllium ethoxyacetate with the composition $Be_7O_2(CH_3COO)_6(OC_2H_5)_4$ and a method of obtaining it by recrystallization of the mother liquor left after separation of $Be_4O(CH_3COO)_5(OC_2H_5)$ from the sublimate resulting from thermal decomposition of $Be(CH_3COO)\cdot(OC_2H_5)$ in a vacuum after recrystallization from hot n-octane or extraction by n-pentane. X-rays of the powder and infrared adsorption spectra of crystalline forms of the compounds are presented. In the infrared spectra of $Be_4O(CH_3COO)_6$, $Be_4O(CH_3COO)_5\cdot(OC_2H_5)$, $Be_7O_2(CH_3COO)_6(OC_2H_5)_4$ and $Be(CH_3COO)(OC_2H_5)$ special attention is brought to the variation in relative intensity and position of the bands caused by vibrations of the aloxyl groups on transition from the beryllium oxymonoethoxypentaacetate to "normal" beryllium ethoxyacetate. The most characteristic changes in the spectra are observed in the 850-200 cm^{-1} range.

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USSR UDC 620.193.5

OSIPOV, M. M., GRIGORIYEV, A. I., and BANNYKH, O. A., Academy of Sciences USSR, Institute of Metallurgy imeni A. A. Baykov

"Effect of Chromium and Nickel on Heat Resistance of Fe-Cr-Ni Alloys in Air"

Moscow, Zashchita Metallov, Vol 7, No 1, Jan-Feb 71, pp 24-27

Abstract: The authors studied the effect of the chromium and nickel content on the heat resistance of Fe-Cr-Ni alloys and the oxide film structure for purposes of determining the optimal component ratio in austenitic steels for prolonged operation at temperatures up to 1000°. The alloys contained 16-24 wt. percent Cr and 30-45 wt. percent Ni. The specimens were oxidized in air at 850, 900, and 1000°. The tests for each temperature lasted 25, 50, and 100 hours, with a total oxidation time of 1000 hours for each specimen. The results indicate that the presence of ferric and nickel oxides in the scale structure is unfavorable. The greatest oxidation resistance is found where the scale

USSR

OSIPOV, M. M., et al., Zashchita Metallov, Vol 7, No 1, Jan-Feb 71, pp 24-27

forming on the alloys consists of the spinel $Ni(Fe,Cr)_2O_4$ and the oxide Cr_2O_3. In order to obtain an oxide film structure favorable from the standpoint of prolonged heat resistance at 1000°, alloys containing 20 percent chromium should have at least 40 percent nickel, while alloys with 24 percent chromium should have 30 percent nickel.

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Forming

USSR

SMIRNOV, V. S., and GRIGOR'YEV, A. K.

"Theory of Pressure Working of Metals and Development of New Technological Processes in the USSR"

Moscow, IVUZ Chernaya Metallurgiya, No 4, 1970, pp 22-25

Abstract: A description is given of the theory of pressure working of metals and the history of the development of new metallurgical processes in the USSR. High velocities, ultrasonic oscillations, superhigh pressures, electromagnetic field energy, hydraulic shock and thermomechanical processing are some of the techniques being used in the USSR. Significant results have been achieved in various aspects of the theory of the pressure working of metals at the Leningrad Polytechnic Institute.

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Acc. Nr.: AF0044048

Ref. Code: UR0011

JPRS 52052

Geological Interpretation of Space Photographs of the Earth

(Abstract: "Possibilities of Geological Interpretation of Space Photographs of the Earth," by B. V. Vinogradov and Al. A. Grigor'yev., Laboratory of Aerospace Geographic Methods, Leningrad State University; Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, No. 1, 1970, pp. 16-28)

The possibilities of geological interpretation of space photographs of the earth are reviewed. The text, photographs and bibliography indicate that the article is based largely on non-Soviet sources (the bibliography has two Russian, two German and thirteen American sources). The authors feel that space photographs can be used in geology for the following purposes: 1) detection of new and more precise study of known major structural forms, folded and faulted formations (particularly in inaccessible regions and on plains where they are masked by unconsolidated deposits); 2) determining the interrelationship between folded and faulted tectonic forms; 3) tracing macro- and mega-structural forms and studying major geological patterns (including distribution of minerals); 4) studying fissuring (at a planetary scale) and finding the relationship between

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fissuring and other characteristics of geological structure; 5) tracing strata, suites and individual marking horizons for compiling regional geological maps; 6) investigating regions of major geological anomalies (magnetic, gravitational, etc.) and determining the interrelationship between these anomalies and other peculiarities of geological structure; 7) generalizing local data for compiling geological maps (up to a scale of 1:500,000 or more). Compilation of small- and intermediate-scale geological maps for poorly studied areas and revising existing maps; 8) for geological regionalization; 9) geological engineering regionalization, terrain passability studies, etc.; 10) comparative geological studies at a global scale and finding geological analogues for making various kinds of correlations (stratigraphic, tectonic, etc.) and for geological prediction; 11) compilation of a uniform geological map of the world at scales 1:1,000,000-1:2,000,000. It is paradoxical but a fact that with increasing distance from the earth, photographing it from considerably greater altitudes than before, more and better information is obtained concerning some aspects of geological structure.

19770507

USSR

UDC 629.7.036.54-66:536.46

GRIGOR'YEV, A. I.

"The Combustion of Metal Conglomerates"

Odessa, 11-ya Vses. Konf. po Vopr. Isparenlya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1072--Snornik (11-th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972 -- Collection of Articles), 1972, pp 29-30 (from Referativnyy Zhurnal -- Aviatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.141. Resume)

Translation: At temperatures of the surrounding medium on the order of 1300° K metal conglomerates covered by solid or liquid films burn up to the extent of about 30%. Primarily the metal from the surface layer of the conglomerate burns out. It is considered that on the surface of the conglomerates, a quantity of heat is released that is equal to the product of the mass combustion rate by the energy release of the reaction. The functionally obtained relationship of the temperature of the conglomerate to time coincides with experimental thermograms for boron and aluminum conglomerates. In this case, it turns out that the temperature of the conglomerate increases with an increase of porosity.

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USSR

UDC 621.382.002

GAYSINSKIY, V.B., GAL'CHINETSKIY, L.P., GRIGOR'YEV, A.N., KOSHKIN, V.M., KULIK, V.N., NIKOLAYCHUK, L.I., PIVOVAR, L.I., RAYSKIN, E.K., SYSOYEV, L.A., FAYNER, M.SH.

"Ion Implantation Of Single Crystals Of Cadmium Sulfide"

V sb. Monokristally i tekhnika (Single Crystals And Technology--Collection Of Works), Issue 6, Khar'kov, 1972, pp 109-112 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11B459)

Translation: The effect was studied of the dose and energy of irradiation by lithium ions in the temperature range from minus 70 to plus 180° C on the conductivity of cadmium sulfide. A divergence is found between the theoretically calculated value of the depth of penetration of lithium ions and the experimental results. These divergences are accounted for by the marked differences of the structures of the surface layer and the volume of the crystal. With the aid of ion implantation piezosemiconductor transducers were produced based on a high-resistance layer in CdS. Summary.

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USSR UDC: 621.396.6-181.5(088.8)

GRIGOR'YEV, A. N., TIMOFEYEV, B. I., ALIMKIN, N. S.

"A Device for Making Microcircuits"

USSR Author's Certificate No 277895, filed 3 Mar 69, published 19 Nov 70 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V159 P)

Translation: This Author's Certificate introduces a device for making microcircuits. The device contains a substrate-feeding mechanism, a mechanism for coating the substrates with cement, a mechanism for step-feeding the film, and a mechanism for shaping the current-conducting elements of the microcircuit. In order to increase the work productivity of the device, the mechanism for shaping the current-conducting elements of the microcircuit is made in the form of a hollow punch set with a feed-through channel which is open to the inner cavity of a cylindrical punch holder which is fitted with a spring-loaded piston. A locator made in the form of a spring-loaded lever fits into a slot in the piston rod.

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USSR

UDC 621.3.049.75

GRIGOR'YEV, A. N., TIMOFEYEV, B. I., ALIMKIN, N. S.

"A Device for Making Microcircuits"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 25, Soviet Patent No 277895, class 21, filed 3 Mar 69, published 5 Aug 70, p 53

Translation: This Author's Certificate introduces a device for making microcircuits which contains a mechanism for feeding substrates, a mechanism for coating the substrates with cement, a mechanism for step-feeding the film, and a mechanism for shaping the current-conducting elements of the microcircuit. As a distinguishing feature of the patent, the work productivity of the device is increased by making the device which shapes the current-conducting elements of the microcircuit in the form of a set of hollow punches with a cavity through them which communicates with the inner cavity of a cylindrical punch holder equipped with a spring-loaded piston. A locator made in the form of a spring-loaded lever fits in a slot in the piston rod.

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USSR UDC 622.011.43

GRIGOR'YEV, A. S.

"Stressed State and Deformations of a Viscous Rectangular Mountain Mass in the Case of Lateral Displacement"

V sb. Tektonofiz. i mekh. svoystva gorn. porod (Tectonophysical and Mechanical Properties of Rocks--collection of works), Moscow, "Nauka", 1971, pp 38-48 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10V497)

Translation: Solution of the problem of deformations and the stressed state of a ponderable mountain mass of rectangular shape when one of its side faces is displaced at a given rate under conditions of plane deformation. It is assumed that the material of the mountain mass is incompressible and linearly viscous and admits forces of friction proportional to normal pressure when sliding takes place along the faces in contact with other solids. The problem was formulated for purposes of a theoretical study of the stressed state and the pattern of deformations in the Earth's crust accompanying horizontal motions of relatively rigid blocks, and in particular for purposes of determining the conditions of formation of thrust folds. An approximate theoretical solution is constructed for

USSR

GRIGOR'YEV, A. S., Tektonofiz. i mekh. svoystva gorn. porod, Moscow, "Nauka", 1971, pp 38-48

the most general case where partial sliding of the mountain mass takes place along part of the base in the vicinity of the moving face. Formulas are derived for the stresses and rates of displacements. For the specific case of a relatively extended mountain mass, all necessary computations are carried out, and graphs of the stresses on the faces are given along with the characteristic rates of displacements. Trajectories are plotted for the maximum tangential stresses in the most highly stressed zone, and the change in shape of the mountain mass with time is shown. These graphs give appropriate quantitative estimates and graphically illustrate the nature of damping of stresses and velocities with increased distance from the moving face. Author's abstract.

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1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--THEORY AND PROBLEMS OF EQUILIBRIUM OF SHELLS IN THE CASE OF LARGE DEFORMATIONS -U-
AUTHOR--GRIGORYEV, A.S.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDOGO TELA, JAN.-FEB. 1970, P 163-168
DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SHELL OF REVOLUTION, SHELL STRUCTURE, SHELL THEORY, METAL DEFORMATION, BIBLIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0172 STEP NO--UR/0484/70/000/000/0163/0168

CIRC ACCESSION NO--AP0054968
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0054968
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BRIEF SURVEY OF THE LITERATURE ON THE THEORY OF SHELLS WITH LARGE DEFORMATIONS AND ITS APPLICATIONS. VARIOUS PHYSICAL MODELS USED TO DESCRIBED THE MECHANICAL PROPERTIES OF THE SHELL MATERIAL ARE DISCUSSED, AS WELL AS THE ASSUMPTIONS UNDERLYING THE WIDELY USED DAVIS NADAI DEFORMATION THEORY. A NUMBER OF ARTICLES DEALING WITH THE STABILITY OF THESE SHELLS UNDER UNIAXIAL AND BIAXIAL TENSION ARE REVIEWED, AS WELL AS A WORK IN WHICH THE DEFORMATION THEORY WAS APPLIED TO THE SOLUTION OF SIMPLE PROBLEMS CONCERNING LARGE DEFORMATIONS OF TWO LAYER SHELLS. THE THEORY OF LARGE DEFORMATIONS OF SHELLS MADE OF MATERIALS POSSESSING RHEOLOGICAL PROPERTIES IS TOUCHED UPON BRIEFLY, AND THE FINDINGS OF A WORK ON THE THEORY OF LARGE DEFORMATIONS OF SHELLS OF REVOLUTION ARE CITED.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201020006-8"

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--METASTABILITY OF CALCIUM SILICATE HYDRATES DURING INCREASE OF THE AUTOCLAVE TEMPERATURE -U-

AUTHOR-(03)-BOZHENOV, P.I., KAVALEROVA, V.I., GRIGORYEV, B.A.

COUNTRY OF INFO--USSR

SOURCE--STROIT. MATER. 1970, (5), 31-2

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, CHEMISTRY

TOPIC TAGS--MINERAL FORMATION ANALYSIS, SILICATE MINERAL, CALCIUM MINERAL, AMORPHOUS SILICON, QUARTZ, CALCIUM OXIDE, CRYSTAL HYDRATE, X RAY DIFFRACTION PATTERN, THERMAL ANALYSIS, TEMPERATURE DEPENDENCE, METASTABLE STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1282 STEP NO--UR/0228/70/000/005/0031/0032

CIRC ACCESSION NO--AP0136688

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136688

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CA SILICATE HYDRATES WERE PREPD. BY MIXING CAO WITH AMORPHOUS SILICA OR FINELY GROUND QUARTZ IN THE MOL. RATIO OF 1:1 AND PRESSING SMALL CUBES (EDGE LENGTH 1.4 CM) FROM THE MIXT. THE CUBES WERE AUTOCLAVE CURED AT TEMPS. 448-637DEGREESK, APPLYING A HIGH HEATING RATE. AFTER CURING THE SAMPLES WERE QUENCHED, AND THEIR STRENGTH AND MINERAL. COMPN. (BY X RAY DIFFRACTION AND DTA) DETD. THE SEQUENCE OF MINERAL FORMATION IN SAMPLES MADE WITH AMORPHOUS SILICA; BELOW 498DEGREESK 1.25CAO.-SIO SUB2.H SUB2 O (I) AND 2 CAO.SIO SUB2.NH SUB2 O (II) ARE FORMED. AT 498-583DEGREESK, I IS TRANSFORMED INTO 0.8CAO.SIO SUB2.NH SUB2 O (III) AND CAO.SIO SUB2.0.18H SUB2 O (XONOTLITE), AND II INTO C TYPE 2CAO.SIO SUB2.-H SUB2 O. BETWEEN 537 AND 583DEGREESK III IS TRANSFORMED INTO XONOTLITE, ALSO. AT STILL HIGHER TEMPS. SOME X RAY DIFFRACTION PEAKS OF GYROLITE OCCUR, BUT GYROLITE HAS NOT DETECTED BY DTA. IN QUARTZ BEARING SAMPLES THE FORMATION SEQUENCE IS SIMILAR, BUT THE AMT. OF COMPDS. FORMED IS LOWER (CONSEQUENTLY THE AMTS. OF UNCOMBINED LIME AND SILICA HIGHER) AND THE TRANSFORMATIONS TAKE PLACE AT HIGHER TEMPS. AT TOP TEMPS. THE FORMATION OF AN UNIDENTIFIED LOW LIME COMPD. WAS OBSD. IN THIS CASE; ITS VERY INTENSIVE X RAY PEAK OCCURS AT 3.01ANGSTROM. THE STRENGTHS OF SAMPLES MADE OF QUARTZ BEARING BATCHES IS ALWAYS HIGHER THAN THOSE MADE WITH AMORPHOUS SILICA.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--ECONOMIC AND MORAL POTENTIALS IN CONTEMPORARY WAR -U-

AUTHOR--GRIGORYEV, B.G.

COUNTRY OF INFO--USSR

SOURCE--ECONOMIC AND MORAL POTENTIAL IN CONTEMPORARY WAR (EKONOMICHESKIY I MORAL'NYY POTENTIALY V SOVREMENNOY VOYNE) VOYENIZDAT, 1970, 124 PP
DATE PUBLISHED-------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--MORALE, ECONOMIC CONDITION, DEFENSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0495 STEP NO--UR/0000/70/000/000/0001/0124

CIRC ACCESSION NO--AM0109480

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--02OCT79
CIRC ACCESSION NO--AM0105480
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: INTRODUCTION PAGE 3; CHAPTER I ECONOMIC POTENTIAL AND ITS ROLE IN CONTEMPORARY WAR PAGE 11; CHAPTER II MORAL POTENTIAL AND ITS ROLE IN CONTEMPORARY WAR PAGE 80. THE BOOK DEALS WITH THE ESSENCE AND SIGNIFICANCE OF ECONOMIC AND MORAL POTENTIALS IN CONTEMPORARY WAR, CHARACTERISTICS OF THEIR BASIC ELEMENTS, ROLE OF THESE FACTORS IN STRENGTHENING OF THE DEFENSE POWER OF THE SOVIET STATE AND IMPROVEMENT OF FIGHTING EFFICIENCY OF THE ARMED FORCES OF THE USSR. THE BOOK WAS WRITTEN IN AN EASY LANGUAGE FOR A WIDE CIRCLE OF MILITARY READERS; IT CAN BE USED ALSO BY PROPAGANDISTS.

UNCLASSIFIED

USSR

UDC 532.516.2

SIPENKOV, I. Ye., GRIGOR'YEV, B. S.

"Determination of the Axial Load-Bearing Capability of Shaped Spherical Bearings with Gas Lubrication"

Probl. Razvitiya Gaz. Smazki. Ch. 1 [Problems of Development of Gas Lubrication, Part 1 -- Collection of Works], Moscow, Nauka Press, 1972, pp 87-107, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 B627 by A. I. Snopov).

Translation: The axial load-bearing ability of spherical bearings with gas lubrication with two symmetrical bands of spiral channels cut into the nonmoving sphere is studied in the limiting cases of large and small compressibility numbers λ. Where $\lambda \to \infty$, the asymptotic solution of Ya. M. Kotlyar is used and the reaction of the lubricant film is calculated with slight eccentricities. In the case of small λ, the Reynolds equation is used for incompressible lubricant and an equation is composed on the basis of the assumptions of the "narrow channel" theory of Wipple for the average pressures. The rigidity of the lubricant layer is calculated analytically for concentric placement of the journal in the bearing. Graphs are presented, reflecting the dependence of axial rigidity on various parameters of the

USSR

UDC 532.516.2

SIPENKOV, I. Ye., GRIGOR'YEV, B. S., Probl. Razvitiya Gaz. Smazki. Ch. 1 Moscow, Nauka Press, 1972, pp 87-107.

problem (width of band, angle of spirals to slipping direction, dimensions of channels, etc.). Also presented for comparison are certain results of numerical solution of the Reynolds equation with a finite number of channels and for sector bearings.

It is noted that although the "narrow channel" theory does lead to slightly elevated values of axial rigidity, it is suitable for engineering practice with a sufficiently large number of channels ($N > 4$-6) and small λ ($\lambda \leq 50$), in particular for determination of the optimal parameters of the bearing and corresponding rigidity. 9 Biblio. Refs.

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USSR

UDC: 669.1:541/1

ZHUKHOVITSKIY, A. A., BELASHCHENKO, D. K., BOKSHTEYN, B. S., GRIGORYAN, V. A., GRIGOR'YEV, G. A., and GUGLYA, V. G.,

Fiziko-Khimicheskiye Osnovy Metallurgicheskikh Protsessov (Physico-Chemical Bases of Metallurgical Processes), Moscow, Metallurgiya, 1973, 392 pp

Translation: Annotation. This book contains the material of special courses used by the students of the Physics-Chemistry Department of the Moscow Institute of Steel and Alloys. This work makes it possible for a broad range of young specialists to acquaint themselves with many branches of modern physics and physical chemistry. The book contains: 104 illustrations, 17 tables, and 292 bibliographic entries.

Contents.

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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Graphite

USSR

UDC 669.11.2.063.5:669.29-154

GRIGOR'YEV, G. A., ARKHIPKIN, V. I., AGAYEV, A. D., and KOSTIKOV, V. I., Moscow Institute of Steel and Alloys

"On the Wetting Kinetics of Graphite With High-Melting Liquid Metals"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 7, 1972, pp 15-18

Abstract: The Department of Physical Chemistry of the Moscow Institute of Steel and Alloys has developed a new method for describing the process of wetting graphite with high-melting liquid metals. The process is described on the basis of the dimensionality theory by derived criterional equations. The method is used in conjunction with a tensometric device and a loop oscillograph. The force acting on a vertical pin or plate is registered from the initial contact with the horizontal surface of the melt until the equilibrium state is reached. Three types of oscillograms for Ti, Hf, V, Mo, and Zr were derived and the relaxation times of the graphite wetting process with these metals were determined. In the case of wetting with liquid Zr, the kinetics of the process are obviously determined by the propagation rate of the carbide film on the graphite surface, the relaxation time being of the same order as for other metals ($\tau \approx 0.001$). One figure, one table, five formulas, four bibliographic references.

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USSR

UDC 669.09-194:541.183

KOSTIKOV, V. I., GRIGOR'YEV, G. A., ARKHIPKIN, V. I. and AGAYEV, A.D.,
Moscow Institute of Steels and Alloys

"Surface Tension Measurements of Group IV High-Temperature Metals"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya,
No 3, 1972, pp 25-27

Abstract: The paper deals with surface tension measurements of refractory titanium, zirconium, and hafnium metals by employing the new method of suction of a cylinder into the molten metal versus the sessile drop, suspended drop, and drop weight methods used in earlier research. In the suction method the surface tension of the metals is measured from their force of suction of a solid plate or a cylinder into the melt. A diagram of the surface tension measuring device is shown. Correlation of measurement data shows good agreement with those in earlier papers involving the use of other procedures. The high accuracy of the method coupled with the equally good reproducibility of results makes this method suitable for use in measuring the surface tension of metals featuring extremely high melting points.
(1 illustration, 1 table, 8 bibliographic references)

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1/2 019 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--EFFECT OF SURFACE ACTIVE ADDITIVES IN THE ANNEALING MEDIUM ON THE TEXTURE OF SECONDARY RECRYSTALLIZATION -U-

AUTHOR-(03)-AVRAMOV, YU.S., GRIGURYEV, G.A., PETLYAKOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 384-7

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL TEXTURE, TRANSFORMER STEEL, HALIDE, MOLTEN CHLORIDE, FLUORIDE, ANNEALING, SURFACE ACTIVE AGENT, BROMIDE, METAL RECRYSTALLIZATION, GRAIN BOUNDARY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0184 STEP NO--UR/0048/70/034/002/0384/0387

CIRC ACCESSION NO--AP0115888

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--090CT70

CIRC ACCESSION NO--AP0115688

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRANSFORMER STEEL SPECIMENS WERE ANNEALED IN A BACL SUB2 MELT AT 1000-1100DEGREES FOR 30-180 MIN WITHOUT AND WITH AN ADDN. OF K HALIDES. ON THE BASIS OF THE ETCHED FIGURES, DIFFERENT RESULTS WERE OBSD. OWING TO THE PREVIOUS TREATMENT. FOR THE SPECIMENS, HIGH TEMP. ANNEALED AFTER DEFORMATION, THE FRACTION OF CUBIC COMPONENT INCREASED IN THE SECONDARY RECRYSTN. TEXTURE PROPORTIONALLY BOTH TO INCREASING ANNEALING TIME AND TEMP. UNDER THE SAME CONDITIONS, THE (110)(001) TEXTURE OF LAMINAR COMPONENT WAS IMPROVED IF THE SAMPLES WERE HEATED PREVIOUSLY IN VACUUM AT 750DEGREES FOR 30 MIN. THE SURFACE ACTIVITY OF HALIDES IN THE BACL SUB2 MELT INCREASES IN A SERIES BR-CL-F AND IN ESP. PREVIOUSLY HEATED SAMPLES. DURING THE ANNEAL OF SPECIMENS AFTER DEFORMATION ONLY THE PRIMARY RECRYSTN. ALSO OCCURRED AS A RESULT OF A BOUNDARY AND GRAIN ENERGY ACTION. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ADSORPTION OF METAL VAPORS ON SOLID COPPER -U-

AUTHOR-(03)-ALSHEVSKIY, V.S., GRIGORYEV, G.A., ZHUKHOVITSKIY, A.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 234-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL VAPOR, COPPER, CREEP, LEAD, BISMUTH, THALLIUM, SURFACE TENSION, ADSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1811 STEP NO--UR/0370/70/000/001/0234/0238

CIRC ACCESSION NO--AP0118775

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118775

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ZERO CREEP METHOD WAS USED TO MEASURE THE SURFACE TENSION OF SOLID COPPER WITH DIFFERENT PARTIAL VAPOR PRESSURES OF PB, BI, AND TL. THE ADSORPTION OF THESE VAPORS ON THE SURFACE OF SOLID COPPER WAS CALCD.; THE ADSORPTION ISOTHERMS FIT THE BET EQUATION FOR POLYMOL. ABSORPTION. CONSTS. WERE CALCD. AND ADSORPTION HEATS WERE EVALUATED AND ARE CLOSE TO THE CONDENSATION HEATS OF VAPORS OF THE CORRESPONDING ELEMENTS.

UNCLASSIFIED

USSR

UDC 550.837.73

BULGAKOV, YU. I., VELIKIN, A. B., GRIGOR'YEV, G. O., POLIKARPOV, A. M.

"Device for Inductive Geoelectric Exploration by the Transient Process Method"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 16, 8 May 70, p 61, Patent No 270122, Filed 2 Mar 63

Translation: This Author's Certificate introduces a device for inductive geoelectric exploration by the transient process method. The device comprises a generator and measuring assembly containing a receiving loop, a commutator, an amplifier and a recorder. It is distinguished by the fact that in order to improve the sensitivity and resistance to low-frequency noise when measuring steady-state low voltages, a level index and two or several synchronous filters connected with it are connected to the output of the pulse amplifier in the measuring assembly.

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USSR

UDC 536.462:533.9.07.082

GRIGOR'YEV, I. G.

"On the Reliability of Measuring the Temperature of Flame and Plasma of Arc-Type and High-Frequency Discharges by the Method of Relative Intensities of Atomic Lines"

V Sb. "VII Ural'sk. Konf. po Spektroskopii, 1971. Vyp. 1" [In the Collection "Seventh Ural Conference on Spectroscopy, 1971. No 1."], Sverdlovsk, 1971, pp 144-146 (from Referativnyy Zhurnal, No 10, Oct 72. 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 10.32.915 by V. S. K.)

Translation: The suggestion is made to use a spectrophotometer on the basis of the UM-2 monochromator with photoelectric spectrum registration for measuring flame and plasma temperatures of arc-type and high-frequency discharges by the method of relative intensities of lines pertaining to an only atom and possessing different upper levels. For the measurements the prismatic dispersed system of the monochromator is replaced by a diffraction grating. The sensitivity change of the spectrophotometer for different sections of used intervals of the spectrum was taken into account by means of a correction determined by a measurement of the continuous spectrum of a reference tungsten lamp. The temperature of the lamp filament was measured

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GRIGOR'YEV, I. G., V Sb. "VII Ural'sk. Konf. po Spektroskopii, 1971. Vyp. 1," Sverdlovsk, 1971, pp 144-146

with the OPPIR-09 pyrometer. Results are presented of measuring flame temperatures of the mixtures propane-air, propane-air-oxygen, and propane-oxygen. Two tables, eight bibliographical references.

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1/2 007 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--LONG RANGE PLANNING OF ECONOMIC EFFICIENCY OF STANDARDIZATION AT ENTERPRISES -U-

AUTHOR--GRIGORYEV, I.K.

COUNTRY OF INFO--USSR

SOURCE--STANDARTY I KACHE TVO, 1970, NR 2, PP 64-66

DATE PUBLISHED--------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--INDUSTRIAL STANDARD, INDUSTRIAL PLANNING, INDUSTRIAL MANAGEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0325 STEP NO--UR/0422/70/000/002/0064/0066

CIRC ACCESSION NO--AP0100812

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0100812
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ECONOMIC EFFICIENCY OF STANDARDIZATION SHOULD BE PLANNED AT INDUSTRIAL ENTERPRISES. THE SUGGESTED METHOD OF CALCULATIONS IS ILLUSTRATED BY PRACTICAL EXAMPLES.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--090CT70

1/2 012

TITLE--FEATURES OF PRODUCTION TECHNOLOGY AND MECHANISM OF PORE FORMATION IN LIGHT WEIGHT PERLITE GROG CERAMICS -U-

AUTHOR-(05)-FAIN, I.A., KAMENETSKIY, S.P., RABINOVICH, M.A., GRIGORYEV, I.V., MINKOV, D.B.

COUNTRY OF INFO--USSR

SOURCE--OGNEUPORY 1970, 35(2), 3-6

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FOAM, REFRACTORY MATERIAL, INDUSTRUAL PRODUCTION, POROSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0131/70/035/002/0003/0006

PROXY REEL/FRAME--1992/1979

CIRC ACCESSION NO--AP0112943

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112943

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BLOATING PERLITE SAND IS RECOMMENDED INSTEAD OF FOAM PERLITE. IT ENABLES PRODUCING 2.3-2.4 MORE PRODUCTS. POROSITY OF BLOATING PERLITE IS 0.6-0.75 KG-CM PRIME2. TO PROTECT THE STRUCTURE OF PERLITE A SPECIAL HORIZONTAL MIXER WAS USED.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--STABILITY OF BLUNTED SPHERICAL SHELLS LOADED BY HYDROSTATIC EXTERNAL PRESSURE -U-

AUTHOR--GRIGORYEV, I.V., MYACHENKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, FEB. 1970, P. 18-21

DATE PUBLISHED----FEB70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SPHERIC SHELL STRUCTURE, HYDROSTATIC PRESSURE, ORDINARY DIFFERENTIAL EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1324 STEP NO--UR/0198/70/006/000/0018/0021

CIRC ACCESSION NO--AP0106101

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106101

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE STABILITY OF BLUNTED SPHERICAL SHELLS UNDER HYDROSTATIC PRESSURE ON THE BASIS OF A NONTRIVIAL SOLUTION TO THE EQUILBRIUM EQUATIONS, WHICH SATISFIES FOUR HOMOGENEOUS BOUNDARY CONDITIONS AT EACH FACE OF THE SHELL. THE CRITICAL VALUE OF THE EXTERNAL PRESSURE IS OBTAINED BY REDUCING THE EQUILIBRIUM EQUATIONS AND THE BOUNDARY CONDITIONS TO A SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS WHICH ARE SOLVED BY A FINITE DIFFERENCE TECHNIQUE. A FORMULA FOR THE CRITICAL EXTERNAL PRESSURE IS PROPOSED, AND THE INFLUENCE OF THE BOUNDARY CONDITIONS ON ITS CRITICAL VALUE IS ASSESSED.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--STABILITY OF BLUNTED SPHERICAL SHELLS LOADED BY HYDROSTATIC EXTERNAL PRESSURE -U-

AUTHOR--GRIGORYEV, I.V., MYACHENKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, FEB. 1970, P. 18-21

DATE PUBLISHED----FEB70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SPHERIC SHELL STRUCTURE, HYDROSTATIC PRESSURE, ORDINARY DIFFERENTIAL EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1324 STEP NO--UR/0198/70/006/000/0018/0021

CIRC ACCESSION NO--AP0106101

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106101

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE STABILITY OF BLUNTED SPHERICAL SHELLS UNDER HYDROSTATIC PRESSURE ON THE BASIS OF A NONTRIVIAL SOLUTION TO THE EQUILBRIUM EQUATIONS, WHICH SATISFIES FOUR HOMOGENEOUS BOUNDARY CONDITIONS AT EACH FACE OF THE SHELL. THE CRITICAL VALUE OF THE EXTERNAL PRESSURE IS OBTAINED BY REDUCING THE EQUILIBRIUM EQUATIONS AND THE BOUNDARY CONDITIONS TO A SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS WHICH ARE SOLVED BY A FINITE DIFFERENCE TECHNIQUE; A FORMULA FOR THE CRITICAL EXTERNAL PRESSURE IS PROPOSED, AND THE INFLUENCE OF THE BOUNDARY CONDITIONS ON ITS CRITICAL VALUE IS ASSESSED.

UNCLASSIFIED

Acc. Nr.: AM0106713 Ref. Code: UR0000

Chizhikov, A. I.; Parminov, V. P.; Lokhimovich, V. L.; Girskiy, L. Ye.; Morozenskiy, L. I.; Grigor'yev, E. F.

Continuous Casting of Steel Into Billets of a Large Cross-Section (Nepreryvnaya razlivka stali v zagotovki krupnogo secheniya) Moscow, Metallurgiya, 1970, 135 pp (SL:2047)

TABLE OF CONTENTS:

1/2

Reel/Frame
19890037

18

Acc. Nr.: AM 0106713

Given are results of investigations of conditions in formation of large continuous ingots.

Given are results of the development and adoption of techniques for continuous steel casting into slabs with a width up to 1500 mm and shaped castings with a cross-section up to 280 X 420 mm.

Reel/Frame
19890038

GRIGOR'YEV, L.P.

public health

SO: JPRS 54019
9 SEP 71

UDC: 614.3-056.78(049.3)

SOME REMARKS CONCERNING PERIODIC PHYSICAL EXAMINATIONS

Article by V.P. Grigor'yev, L.P. Marochkin; Moscow, Sovetskoye zdravookhraneniye, Russian, No 2, 1971, submitted 23 February 1971, pp 25-28]

Progress of socialist economics is inseparably linked with the productivity of labor. The economic indices of rise in productivity of labor are made up of a set of factors which determine the expediency and profitability of each unit of working time in industry.

In this regard, we should like to voice some views about periodic physical examination of industrial workers which is done in accordance with order No 400 dated 30 May 1969, issued by the USSR Minister of Health [illegible] order No 1 - dated September 1957). In our opinion, there should be a revision in the [illegible] of such physicals from the economic point of view. It is also important to discuss the effectiveness of their purpose.

Since 1957, our therapeutic institution has been performing physicals on industrial workers. Now [illegible] people are subject to regular examinations. Before the start of a new year special charts are prepared which are approved by enterprise directors and therapeutic institution administrators. These charts are prepared by the heads of polyclinics, of industrial physicians, [illegible] chief engineers of enterprises. In the course of making preparations for the examinations, the charts must be coordinated with the plant trade union committees.

The medical commission consisted of a chief therapist, specialist physicians, nurses, and laboratory assistants. Physicians are called upon [illegible] in the special charts in which pathology is anticipated and whose participation in the physical examination is stipulated in the order of the Ministry of Health. As a rule, the specialists are experienced in [illegible] of industrial workers, who are well acquainted with their working [illegible] and, hence, they are able to [illegible] the staff of [illegible] polyclinics or else notify the enterprises attached to them.

Before starting the physical examinations, instructions are issued [illegible] for the purpose of discussion -- editor.

- 1 -

USSR UDC: 621.372.41

GERASIMOV, Ye. V., GRIGOR'YEV, L. V., POLIKARPOV, P. I., SACHKOVA, G. A.

"Nomograms for Engineering Calculation of the Equivalent Inductance of Quartz Resonators With Lens-Shaped AT-Section Piezoelectric Elements"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 5, pp 3-11 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V445)

Translation: For engineering calculation of equivalence and electrode diameter of AT-section lens-type piezoelectric elements, nomograms were used which were plotted on the basis of a formula giving the least divergence between theoretical and experimental data. Resumé.

1/1

Acc. Nr.: AP0032057 Ref. Code: UR 0477

PRIMARY SOURCE: Zdravookhraneniye Belorussii, 1970, Vol 16, Nr 1, pp 26-30

INJURIES OF THE TALOCRURAL JOINT AND THEIR TREATMENT

L. Ja. Grigoriyev, V. P. Dolgolikov

SUMMARY

The paper basing on the studies of 392 patients with dislocated fractures of the malleolases gives the clinical picture, diagnosis and methods of their treatment. The classification of injuries takes into account the anatomo-biomechanical peculiarities of the talocrural joint structure.

Having studied the remote results of treatment from 1 to 10 years running [illegible] ascertain that a one-moment manual reposition of the fracture with a following application of plaster-of-Paris cast is the principal method of treatment, they gives evidence to an operative interference and employment of the diafixation method of broken off parts by the Kirschner spokes and they also take into account the causes of unsatisfactory outcomes.

VERY POOR QUALITY

1/1 REEL/FRAME 19700226 2

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

237353 CHILLING AND TEMPERING SHEET GLASS, which first of all passes through an electrically (resistance) heated furnace 1 by means of the chain conveyor 2 and under which are a series of nozzles through which an air/gas mixture is injected, so as to form a cool cushion of gas on the underside of the sheet. The sheet then passes into a separate treatment chamber where a mixture of air and liquid from different sets of nozzles, above and below the moving glass sheet, is sprayed on to the glass. Air/gas circulating pipes, and liquid supply pipes connected to a reservoir, are incorporated in the assembly. In this way, the glass is cooled sufficiently for handling, and tempered at the same time. 29.4.67. as 1155710/29-33. M.D GRIGOR'EV and R.D KHOMYAKOV Technological Plant for Glass Prod. Special Design Office (2.7 69.) Bul.8/12.2.69. Class 32a. Int.Cl. C03b.

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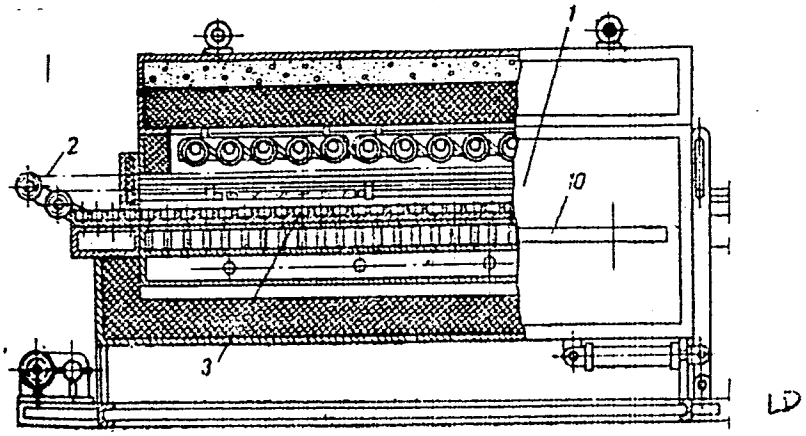
AA0038344



LD

AUTHORS: Grigor'yev, M. D. and Khomyakov, R. D.

Gosudarstvennoye Spetsial'noye Proyektno- Konstruktorskoye Byuro po Proyektirovaniyu Tekhnologicheskogo Oborudovaniya dlya Stekol'nogo Proizvodstva

19731461

USSR

UDC 632.938

DUNIN, M. S., GRIGOR'YEV, M. F., and BUDANOV, V. Ye., Moscow Branch of the All-Union Scientific Research Institute of Plant Growing Mikhnevo Moscow Region

"Change in the Immunological Characteristics of Plants Under the Influence of a Multiple Infection"

Moscow, Sel'skokhozyaystvennaya Biologiya, No 3, May/Jun 73, pp 425-430

Abstract: A study was made of the effect of the simultaneous infection of two strains of wheat by the root rot Fusarium culmorum and the brown rust Puccinia recondita. Five groups were studied: a) control, b) one exposed to the rust, c) one exposed to the rot, d) one having the rot exposed to the rust, and e) one having the rust exposed to the rot. Group d) had a significantly lower resistant to rust than group b). Group e) showed a slightly greater susceptibility to rot than group c).

Pharmacology and Toxicology

USSR

FEDOROV, YU. G., and GRIGOR'YEV, M. YU.

"Diagnostic Value of the Determination of the Titer of Chorionic Gonadothropin and of the Antihormonal Antibodies"

Vopr. Okhrany Materinstva i Detstva (Problems of the Protection of Motherhood and Childhood), 1973, No 7, pp 74-78 (from RZh - Biologicheskaya Khimiya, No 22, Nov 73, Abstract No 1744)

Translation: On the basis of experimental evidence the authors believe it necessary to perform parallel dynamic determination of the titer of chorionic gonadothropin and antihormonal diagnosis of uterine and extrauterine pregnancy.

1/1

AA0044796 .. Grigor'yev, N. I.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

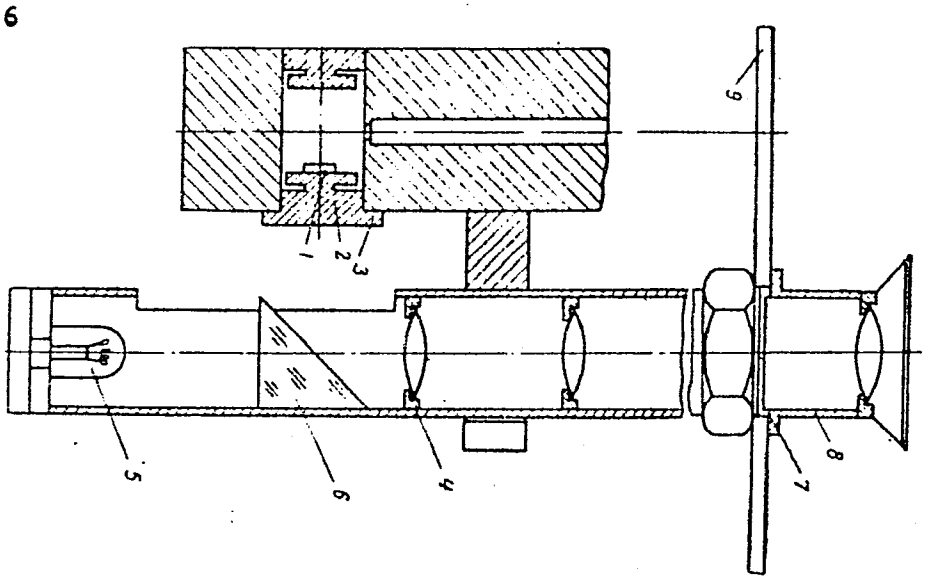
243211 MEASURING THE MAGNETIC SPECTRUM OF PARAMAGNETIC CRYSTALS with improved accuracy of measurement uses the construction shown. The crystal 1 is mounted with adhesive to the piston 2 of a cylindrical resonator, rotated by any suitable mechanism round the horizontal axis. In a line with the cover of the piston, 3 is rigidly fixed an optical tube (for example, from a type RVP-463 surface frequency measuring device). By lamp 5 an image of the element 3 is reflected by mirror 6 through the optical system of 4 on to the object glass 7 of eyepiece 8. 3 and 7 are engraved with graticules. 7 is fastened to an angular measuring device, for example a ST-3 angle plate of a general-purpose microscope, having an error of not more than 15". By comparison of the graticules the true angle of rotation of 3 and 1 is measured. The crystal is orientated in the horizontal plane by rotating the whole apparatus, connected to a second goniometer, for which the angle plate ST-3 may also be used.

11.8.66 as 1097241/26-25.YU.K.GOLUB' et alia.

(15.9.69.) Bul 16/5.5.69. Class 42h.Int.Cl.A 01k.

19771623

AA0044796



AUTHORS: Golub', Yu. K.; Grigor'yev, N. I.; Gur'yanov, V. G.;
Rogachev, V S.

2/2

19771624

USSR

[redacted]

"Luminescent Titrimetric Determination of Zirconium With Quercetin"

Leningrad, Vestnik Leningradskogo Universiteta, No 3, 1957, pp 139-142

Abstract: It is known that a yellow lake is formed in weak acid solutions of zirconium ions, a complex compound like the compounds of zirconium with morin and with flavonol, aluminum, scandium, gallium, etc., this compound being known to fluoresce in ultraviolet beams of pale green light. Based on these and other published data, the authors have established conditions for the luminescent titration of thorium-zirconium mixtures with use of acetic acid and solutions having pH of 2.5 to 3.0. Sensitivity of titration of 1/11 of thorium in 2 ml of solution was determined. The interval of determined concentrations of zirconium with solutions of acetic acid amounts to 1 - 50 γ/2 ml; in the case of more dilute solutions, it is 1 - 100 γ/2 ml. Substantial impurities of the rare earths, titanium, niobium, ferric and iron (II) ions do not hinder the titration of zirconium, but the presence of [illegible] does hinder it.

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Acc. Nr. AP0036334 Abs CHE ervice: .4-70 Ref. Code UR 0068 4

G

69809z Welding conditions and corrosion resistance of welded seams. Klochkov, A. I.; Emel'yanova, V. P.; Dobrovolskii, I. P.; Koval, A. B.; Gribanov, L. F.; Grigor'ev, N. P.; Klishevskii, G. S.; Shchapova, V. V. (Chelyabinsk. Politekh. Inst., Chelyabinsk, USSR). *Koks Khim.* 1970, (1), 50–2 (Russ). The corrosion resistance of welds depends on the type of the welding process applied, on the electrode type, on the compn. of additives, on addnl. thermal treatment, and on the cooling of the seam. For min. corrosion in connections and app. for sulfate plants the following procedure is recommended: in arc welding the *A*-type electrode (C 0.11, Mn 0.9–1.5, Si 0.6–1.1, Cr 16.5–19.5, Ni 7.8–10.0, Mo 1.7–1.5, S 0.02 and P 0.03%) should be preferentially used with Mo as additive. The max. current intensity is 110 A for the welding in Ar atm. with addnl. rod of 1Kh18N9T steel (C $\leq$ 0.12, Mn 1—2, Si $\leq$ 0.30, Cr 17–19, Ni 8–9.5, Ti (C -0.02) $\times$ 5–0.7, S $\leq$ 0.02, P $\leq$ 0.035%). Z. Sterbacek

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18 di

REEL/FRAME
19721172

USSR

UDC 669.046.5

YAVOYSKIY, V. I., SVYAZHIN, A. G., GRIGOR'YEV, N. S., LUZGIN, V. P., KONOVALOV, I. M., TAT'YANSHCHIKOV, A. G., TRUBETSKOV, K. M., RAKEVICH, S. Z., and MECHAYEV, E. A.

"Metal Acidity in Intense Oxygen Bath Blowing"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys). Izd-vo "Metallurgiya," No 61, 1970, pp 84-90

Translation of Abstract: Results are presented of an investigation on metal heterogeneity in intense blowing. Comparable data on the average metal acidity level in a two-bath furnace and in other steel-melting furnaces are given. The effect of various technological factors on metal acidity in the two-bath furnace is considered. 5 figures, 3 references.

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GRIGOR'YEV, O.N.

XVI-13. ROLE OF VACUUM CONDITIONS DURING THE DEPOSITION OF SILICON FILMS ON SAPPHIRE

[Article by A. V. Stanchik, V. Ye. Borsenko, [illegible]

Kiev: Novosibirsk, III Simpozium po Protsessam Rosta i Svoystva Poluprovodnikovykh Kristallov i Plenok, Novosibirsk, 12-17 June 1972, p 194]

Of the three basic parameters (temperature, growth rate and vacuum conditions) affecting the properties of semiconductor films, the last is the least investigated. The purpose of this report is to study the structural and electrophysical properties of monocrystalline silicon films on sapphire as a function of the vacuum conditions during deposition.

The silicon films on sapphire were deposited in the vacuum range of $1 \cdot 10^{-3}$ to $5 \cdot 10^{-8}$ torr in oil and oilless pumping systems. The deposition was carried out by two methods: with high temperature nucleation and with fixed substrate temperature. The structural (electron diffraction patterns, rocking curves of the double crystal spectrometer) and electrophysical (specific resistance, type of conductivity, mobility of the current carriers) characteristics of the films were measured. Analogous experiments were performed with the silicon-silicon homoepitaxial system.

By comparing the results of these experiments the conclusions were drawn regarding minimum effect of the vacuum when applying films according to the conditions with high-temperature nucleation and causes leading to worsening of the film characteristics.

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USSR

UDC 539.234+539.26+621.416

GRIGOR'YEV, O. N., KLOCHKOV, V. P., KOSENKO, V. YE., STADNIK, A. V., SHCHETKIN, V. N.

"Obtaining and Studying Monocrystalline Films of Silicon on Sapphire and Metal-Oxide-Semiconductor Transistors Based on Them"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 16-23

Abstract: A study was made of the effect of the degree of perfection of sapphire substrates on the perfection of the silicon films, the mechanism of formation of a large number of defects in films and the effect of structural defects of the films on the primary parameters of instruments manufactured on the basis of them. Sublimation in a vacuum was used to obtain monocrystalline films of silicon on sapphire and silicon on silicon. The substrates and films were investigated by the methods of x-ray diffraction microscopy. Metal-oxide-semiconductor transistors with characteristics not inferior to the characteristics of analogous instruments made of massive silicon were manufactured from silicon films on sapphire. Topograms of the α-Al_2O_3 substrate of $10\bar{1}2$ orientation taken by various methods are presented. A procedure for obtaining the films is described by which it is possible to obtain silicon films on sapphire which with respect to structure and properties are not inferior to the best films obtained by the method of thermal decomposition of siline or reduction of silicon halides. There are a large number of defects in the silicon films

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USSR -

GRIGOR'YEV, O. N., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 16-23

on sapphire the mechanism of occurrence of which is not fully explained and obviously is of a theoretical nature. The volt-ampere characteristics of the metal-oxide-semiconductor transistors manufactured by the proposed procedure are presented and discussed. The maximum transconductance of transistors with a channel width of 100 microns was 300 micromhos and varied within the limits of 200-300 micromhos. For transistors with a channel width of 400 microns, the transconductance is within the limits of 800-1,000 micromhos.

USSR

UDC 539.26+539.234

KLOCHKOV, V. P., GRIGOR'YEV, O. N., POLUDIN, V. I., SOLDATENKO, N. N., TORCHUN, N. M., TKHORIK, YU. A.

"Obtaining and Studying the Germanium-Silicon Heterosystem"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 24-30

Abstract: A study was made of the heteroepitaxial growth and degree of perfection of germanium films deposited from a molecular beam in a vacuum on substrates made of silicon. The previously obtained results for the Ge-GaAs system [A. P. Klimenko, et al., Protsessy rosta i struktura monokristallicheskikh sloyev poluprovodnikov, Part 1, Nauka Press, Novosibirsk, 478, 1968] are presented for comparison. The indicated systems were used as models of heterojunctions in which the semiconductor pairs are either very close with respect to crystallographic parameters (Ge-GaAs) or these parameters are essentially different (Ge-Si). The crystal structure, mechanism of nucleation and growth and structural defects are studied. The mechanism of occurrence of twins in the germanium films on (100) silicon is discussed. On GaAs substrates in the initial stages of nucleation there is a tendency toward the formation of flat (platelike) nuclei, the tangential growth rate of which turns out to be appreciably higher than the normal growth rate. The germanium films have a

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USSR

KLOCHKOV, V. P., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 24-30

mosaic structure. The data on the angles of disorientation of the films and substrates obtained from the corresponding rocking curves confirm the conclusions obtained from topographic studies: the film growing on the surface of the crystal is not only distorted itself, but it distorts the substrate.

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USSR

UDC 539.26+539.432

KLOCHKOV, V. P., GRIGOR'YEV, O. N., POLUDIN, V. I., SOLDATENKO, N. N., TORCHUN, N. M., and TKHORIK, Yu. A.

"Preparing and Investigating Germanium-Silicon Heterosystems"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 6, 1971, pp 24-30

Abstract: Experiments are described for investigating the heteroepitaxial growth and quality of germanium films deposited on silicon substrates by a molecular beam in a vacuum. The results obtained by these experiments are compared with those found earlier in experiments with Ge-GaAs systems used as models of heterojunctions made of semiconductor pairs with very similar crystallographic parameters, such as Ge-GaAs, or very different parameters, such as Ge-Si. The method of diffraction of fast electrons in reflection and electron microscopy, as well as double crystal spectrometry and X-ray topographical pictures by the Berg-Barrett method are used. The temperature of the silicon substrates varied from 240 to 800° C and the condensation rate from 3 to 4000 Å per second. The vacuum was maintained in the limits of 1 to $5 \cdot 10^{-9}$ mm Hg and the film thickness varied from tens of angstroms to tens of microns. The authors are connected with the Semiconductor Institute, Ukrainian Academy of Sciences.

UDC 539.234+539.26+621.416

USSR

GRIGOR'YEV, O. N., KLOCHKOV, V. P., KOSENKO, V. Ye., STADNIK, A. V., and SHCHETKIN, V. N.

"Preparing and Investigating Monocrystalline Silicon Films on Sapphire and MOS Transistors of That Type"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 6, 1971, pp 16-23

Abstract: As opposed to silicon films deposited on silicon, these films on sapphire permit substantial reductions in the parasitic capacitance of integrated circuits and have other benefits. This paper discusses some problems arising in connection with these devices, such as the effect of the state of the sapphire substrate on the silicon film, the mechanism for the formation of film defects, and the effect of such structural defects on the basic parameters of transistors made by this process. The specimens used in the experiments in the present paper were of the silicon on silicon and the silicon on sapphire type, with the deposition made in vacuum heating chambers of stainless steel. In one type of specimen the films were sputtered on the substrate in a vacuum of 1-3·

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GRIGOR'YEV, O. N., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 16-23

10^{-6} mm Hg without preliminary heating, and in a vacuum of $1\text{-}2 \cdot 10^{-7}$ mm Hg with preliminary heating. The authors assert that the specimens made by their method are in no way inferior to the best of those obtained by thermal decomposition of silance or the reduction of silicon galloids. They find also that silicon on sapphire transistors are at least as good as those of silicon on silicon. They are associated with the Semiconductor Institute of the Ukrainian Academy of Sciences.

USSR

UDC 546.47'22:54 — 1[illegible]

GRIGOR'YEV, O. N., IL'CHISHIN, V. A., KLOCHKOV, V. P., and TOKOM[illegible] N. M., Institute of Semiconductors, Academy of Sciences Ukrainian SSR

"The Crystalline Structure of Electroluminescent Zinc Selenide Films"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 9, Sep 70, pp 1561-1563

Abstract: The literature contains no data on the structural properties of ZnSe films obtained by the two-step method, viz., evaporation of the substance on a cold substrate with subsequent heat treatment. The present article studies the effect of the following on the crystalline structure of ZnSe films: atmosphere, temperature and duration of heat treatment, the presence of a conducting layer (In_2O_3, SnO_2) on the glass substrate, the thickness of the ZnSe film and various activators (Cu, Mn). The batch of Zn and Se was selected in such a way that at different annealing temperatures the Zn and Se vapor pressure was 0.5 and 1 atm, respectively. Annealing temperature varied from 300 to 650° C in 50° C intervals, annealing time one hour. Elec-

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USSR

GRIGOR'YEV, O. N., et al., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 9, Sep 70, pp 1561-1563

tron-diffraction and roentgenographic studies were made of the crystalline structure of the resultant ZnSe films.

The results indicate that annealing without an activator in vapors of a metal or metalloid has no appreciable effect on the phase composition of the initial films. When copper is introduced as activator, annealing in zinc vapors contributes to the formation of the hexagonal modification; annealing in selenium vapors contributes to the cubic modification. With an increase in the film thickness a transition is observed from films containing cubic-modification crystals to only hexagonal-modification films. The transition from crystals of cubic modification to nexagonal modification results from errors in the application of the layers. Orientation of the crystals of hexagonal modification improves with increased thickness.

The authors thank N. A. VLASENKO for his advice and for discussing the results.

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USSR UDC 621.892.8

PANOK, K. K., TRET'YAKOV, P. P., ZUSEVA, B. S., GRIGOR'YEV, P. F., KULIKOV, I. N., GLAVATI, O. L., GORDASH, Yu. T., RABINOVICH, I. L.

"New Aviation Oils with Dipole Type Additives"

Neftepererabotka i Neftekhimiya. Resp. Mezhved. sb. [Oil Refining and Petrochemistry, Republic Interdepartmental Collection], No 5, 1971, pp 38-41, (Translated from Referativnyy Zhurnal Aviatsiyonnye i Raketnye Dvigateli, No 12, 1971, Abstract No 12.34.9, from the Resume).

Translation: The results of studies of the physical, chemical and operational properties of a new aviation oil containing a Dipole-type additive by laboratory methods, and the results of 50 hours tests of this oil in a Type EU-82T one-cylinder installation indicate that this oil is significantly superior to Type MS-20 oil without additives, presently used for piston aviation engines, and is equal to and in some respects superior to aeroshell oil W-100, a foreign type. 3 Tables; 3 Biblio. Refs.

1/1

USSR

GRIGOR'YEV, R.

"Electric "Language" of Fishes. An Interview with Doctor of Biological Sciences Vladimir Rustamovich Protasov, Director of the Laboratory of the Institute of Evolutionary Animal Morphology and Ecology imeni A. N. Severtsev, Academy of Sciences USSR"

Moscow, Vechernyaya Moskva, 3 Mar 73, p 2

Abstract: One of the most interesting enigmas of the underwater realm is the "language" of fishes. In spite of our spectacular achievements in space we know very little of this realm and in particular the means of communication of fishes, the knowledge of which may have great effect on future fishing operations, could relieve us with use of nets, and even lead to control of the behavior of fishes. Intensive research is now under way, and many scientists, including biologists, are engaged in these investigations, one of whom, Doctor of biological sciences Vladimir Rustamovich Protasov, Director of the Laboratory of the Institute of Evolutionary Animal Morphology and Ecology imeni A. N. Severtsov, was interviewed by the author.

The knowledge of peculiarities of signalization and orietnation of fishes are necessary for the science of bionics. For this purpose, investigations can be pursued at least in two directions.

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USSR

GRIGOR'YEV, R., Vechernyaya Moskva, 3 Mar 73, p 2

In the first place, some acoustic signals of fishes constitute interferences with hydroacoustic direction-listening devices, and therefore they must be well studied in order to correctly utilize navigational techniques. Secondly, the structure of remote communication signals of fishes, and the nature of their generating and receiving devices are of essential interest for the improvement of techniques of underwater communication and location, which engineers would like to have at their disposal. Fishes can give their signals not only by sounds, attitudes, jets of water, chemical substances, and light waves, but also by electric fields. This surprising phenomenon has been discovered quite recently and has not yet been well studied. The question is not of electric eels, sheatfish, and skates, which set up powerful electric fields for attack and defense, but of a host of other fishes that were supposed to be deprived of electric organs, and which nevertheless as it turned out are using this energy for location and other purposes. While swimming they set up around them an electric field, dipole: their tail has a negative and their head a positive charge. The objects they run into disturb the lines of forces of the dipole, and from changes in their relief the fishes detect the obstacles encountered.

New data have been recently obtained relative to the "electric communication" of fishes. It was found that the nonelectric fishes can also radiate

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USSR

GRIGOR'YEV, R., Vechernyaya Moskva, 3 Mar 73, p 2

into water the weak electric discharges, which could be recorded both in aquariums and in natural water bodies. With the aid of specially devised instruments these discharges were reproduced in laboratories in the form of knocks, squeaks, and roll of a drum. Sometimes they were accompanied by certain sound signals of fishes. Scientists still do not know the nature of these signals. Future experiments will show whether they are biological currents of the body or electromagnetic waves generated by the interaction of skin with water. But some interesting and important observations which reveal new meaning of electrical discharges of fishes have already been made. During earlier experiments, explains V. R. Protasov, discharges of nonelectric fishes were usually observed in aggressive or defensive situations, but subsequently it was found that they occur most often in schools upon change in external situations. In schools, the electric fields of excited fishes are summed up, forming a single sufficiently strong field.

It is well known that a school of fish which has no leader can nevertheless turn together and change direction. Thus a question arises whether this common electric field does not represent a sort of deliberative forum where the minority obeys the majority and turns a school of fish into a unanimously maneuvering "flotilla." It is also possible that such an electric field,

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USSR

GRIGOR'YEV, R., Vechernyaya Moskva, 3 Mar 73, p 2

which in a small school was observed at 10-15 meters, is also used for electrolocation and navigation purposes, interacting with the geoelectric field. By studying the electric "language" of fishes we can devise an electric direction finder which will considerably supplement the hydrolocator which is used at present in fishing operations. Finally, fishes are endowed with incredible sensitivity to external electric fields. Their electroreceptors are fixing fields which cannot be recorded by any modern instrument. The understanding of the mechanism of these wonderful devices created by nature will permit designing instruments of unprecedented sensitivity essential for electronics.

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USSR UDC 616-002.5+616.912+616.981.551]-084.47"72"

ISHKIL'DIN, M. I. and GRIGORYEV, R. N., Military Medical Academy imeni S. M. Kirov and Leningrad Scientific Research Institute of Tuberculosis

"Experimental Study of the Effectiveness of Simultaneous Inoculation by the Needleless Method Against Tuberculosis, Smallpox and Tetanus"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, Vol 48, No 6, Jun 71, pp 71-76

Abstract: Rabbits were used to determine the feasibility and efficacy of simultaneous prophylactic vaccination of animals with tuberculosis (BCG) and smallpox vaccines and tetanus toxoid. Two series of experiments were conducted. The needleless method of injection was utilized. The animals in group one of the first series of experiments were intracutaneously injected with a mixture of BCG and smallpox vaccines. Rabbits in group two were given the same preparations separately, while those in groups three and four (-- control groups --) were given either BCG or smallpox vaccine. In the second series of experiments all of the experimental animals in groups one and two, which received BCG and smallpox vaccine in a mixture or separately, were also given subcutaneous tetanus toxoid in a dose of 0.5 m and revaccinated with the same dose within 30 days. The animals of three control groups received

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ISHKIL'DIN, M. I., et al, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, Vol 48, No 6, Jun 71, pp 71-76

respectively BCG vaccine, smallpox vaccine, or tetanus toxoid. The intensity of immunity to smallpox and tetanus was determined by the level of antibodies and sera obtained in the indirect hemagglutination reaction with ram erythrocytes treated with tannin and sensitized by concentrated tetanus toxoid or smallpox virus. The level of immunity to tuberculosis was determined by the intensity of postvaccinal allergy and the Mantoux test. Serological pathological, and bacteriological data obtained established that complex needleless immunization of rabbits with BCG and smallpox vaccines and with tetanus toxoid does not adversely affect development of postvaccinal tuberculin allergy or the production of antibodies to smallpox and tetanus. The intensity of immunity created by simultaneous vaccination with the three vaccines does not lower the immunity of the organism to the three antigens.

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UDC 535.215.1

GRIGOR'YEV, R.V., NOVIKOV, B.V., SHESTAKOVA, T.V.

"Change In The Energy Spectrum Of The Trapping Centers Of CdS Crystals Exposed To Electron Bombardment"

Uch. zap. LGU (Scientific Annals Of Leningrad State University), 1970, No 354, pp 91-96 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B252)

Translation: The energy spectrum of the trapping centers in CdS crystals during change of their surface state on exposure to bombardment by electrons with energies of 3 kev is investigated by an analysis of the spectral distribution of photoconductivity and temperature distribution of thermostimulated conductivity. 2 ill. 12 ref. N.S.

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USSR UDC: 53[illegible].321.9

VOROBOV, F. F., GRIGORIYEV, S. B., Institute of High-Pressure Physics, Academy of Sciences of the USSR

"A Device for Measuring the Speed of Ultrasonic Vibrations at High Pressures"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 2, Jan 72, Author's Certificate No 324575, Division G, filed 27 Oct 69, published 23 Dec 71, p 142

Translation: This Author's Certificate introduces a device for measuring the speed of ultrasonic vibrations at high pressures. The unit contains an oscillator, two acoustic lines, and an electronic measuring unit. The acoustic lines are made in the form of two opposing punches with the end faces extending beyond the high-pressure zone. These end faces are attached to piezoelectric transducers. As a distinguishing feature of the patent, deformations of the acoustic contact surfaces between the lines and the specimen are reduced and the pressure limit in the device is increased by making cup-shaped depressions on the working surfaces of the

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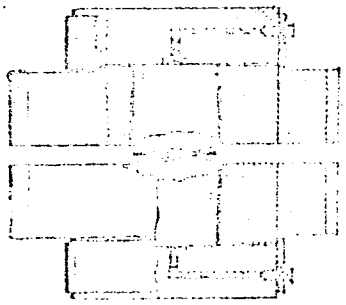
VORONOV, F. F., GRIGOR'YEV, S. B., Soviet Patent No 32[illegible]79

punches. In the central part of these depressions are flat-topped projections.



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Combustion

USSR UDC 661.12'[illegible]

PALCHIKOV, G. P., [illegible], V. V., [illegible], V. V., [illegible], and [illegible]

"Flash Point Concentration Limits of Hydrocarbons and Hydrocarbon Fuels"

Moscow, Zhurnal Prikladnoy Khimii, Vol 45, No 2, Feb 72, pp 378-385

Abstract: Concentration range of a cold flame flash point of various hydrocarbons and hydrocarbon fuels determined in combustors made of different materials, according to temperature and the degree of dilution with an inert gas are described well by a general equation

$$\bar{P} = \varphi(\bar{\theta})(\theta_0 - 1)/(\bar{\theta}_0 - \bar{\theta})$$

where $\bar{\theta}_0 = 1/\theta_0$ and $\varphi(\bar{\theta})$ is an experimentally determined function.

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USSR UDC: 519.2:62-50

BAKALOV, P. M. and GRIGOR'YEV, V. A.

"Isomorphism of Infinite Systems of Differential Equations"

Alma-Ata, Vestnik, Akademii Nauk Kazakhskoy SSR, No 1(321), 1972, pp 71-75

Abstract: The purpose of this brief communication is to demonstrate that the method of finite differential equations used by K. P. Persidskiy for the analysis of infinite systems of differential equations is not the only nor, indeed, the best possible method for such analyses. The present article defines the infinite systems and discusses pseudo-random infinite systems, deriving a practical criterion for estimating the degree of intermixing produced by a concrete function in the systems. In an example, the authors use their method to obtain the same solution yielded by Persidskiy in an earlier article published in the same journal (Beskonechnyye sistemy differentsial'nykh uravneniy -- Infinite Systems of Differential Equations -- No 4(8), 1955). A second example considers the Volterra integral equation of the second kind, which is solved by the method of successive approximations.
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USSR UDC 621.391.8

GRIGOR'YEV, V. A.

"Optimal Synchronous Reception of Discrete Signals in a Channel with Undetermined Arrival Time"

Moscow, Radiotekhnika, Vol 26, No 3, 1971, pp 23-31

Abstract: The author presents a solution to the problem of the optimal recognition of signals under synchronous reception conditions. The synchronization signal is separated from the received signal. An optimal algorithm of reception is determined along with an optimal procedure for time synchronization. The author thanks Professor L. M. Fink for his interest in this work and the manuscript. Original article: 18 formulas, one figure, one table, and seven bibliographic entries.

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UDC 536.423.1

GRIGOR'YEV, V. A., DUDKEVICH, A. S., Candidates of Technical Sciences, Moscow Power Engineering Institute

"The Boiling of Cryogenic Liquids in a Thin Film"

Moscow, Teploenergetika, No 12, 1970, pp 54-57

Abstract: The results of experimental research on the boiling of nitrogen, oxygen, and hydrogen in a thin film are presented, and an approximate analysis of the heat-exchange mechanism is made for the case of developed nucleate boiling. 4 figures, 1 table. 2 bibliographic entries.

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Acc. Nr: AP0049791 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR 0138

101586n **Molecular-weight distribution of cis-1,4-polybutadiene in relation to its preparation conditions.** Shatalov, V. P.; Grigor'eva, L. A.; Kistereva, A. E.; Grigor'ev, V. E.; Fozina, E. N. (Voronezh. Filial Vses. Nauch.-Issled. Inst. Sin. Kauch. im. Lebedeva, Voronezh, USSR). *Kauch. Rezina* 1970, 29(1), 1-3 (Russ). The mol. wt. distribution of the title polymer (I) dissolved in C_6H_{14} + $C\text{-}H_6$ was studied by ultracentrifugation. Increased degree of conversion of butadiene (II) led to a displacement of the mol. wt. distribution curve max. towards the higher mol. wts., but increased polymn. temp. of II caused a shift in the mol. wt. distribution curve max. toward lower mol. wts. The mol. wt. distribution of I depended on the way in which the organoaluminum compd. and Ti halide catalysts were added. Thus, fractional addn. of the 2 catalysts to polymg. II brought about a significant widening in the mol. wt. distribution of I and increased content of low mol. wt. and high mol. wt. fractions. Fractional addn. of II had a favorable effect on polydispersity and improved polymer extrudability. CKJR

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